

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

March 25, 2009

TO: Internal File

THRU: Priscilla Burton, Lead *PWB bms*

FROM: Joe Helfrich, Biology, Land Use, Cultural Resources *JCH*

SUBJECT: Coal Hollow Application, Alton Coal Development LLC, Coal Hollow Mine, C/025/0005 Task # 3100

SUMMARY:

On June 14, 2007, the Division received an application for the Coal Hollow surface mine. The application was determined incomplete on August 27, 2007 and resubmitted on January 24, 2008. On March 19, 2008, the application was determined to be administratively complete. This memo will include a review of the Biology, Land Use and Cultural Resource sections of the regulations. In addition, this document will include information that addresses the comments from the public hearing and the SUWA. On December 22, 2008, the Division received the applicant's submittal that included responses to the deficiencies outlined in the first round of review. This memo will include a review of the Biology, Land Use and Cultural Resource sections of the regulations. The biology section will include consultation and comments from the FWS and DWR.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

The technical data for the review of the following sections of the application is accompanied by the names of the individuals or organizations responsible for collecting the data,

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dates of collection, analysis of the data and descriptions of the methodologies used to collect the data.

Findings:

The information is adequate to meet the requirements of this section of the regulations.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783. et. Al.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

The application for the Coal Hollow Mine includes the following cultural resource information (located in confidential files):

- 6/14/07 Cultural Resource Inventory
- 6/14/07 Paleontological Survey
- 6/14/07 Geologic Report of the impacts of Bedrock and Surgical Units on the Distribution of Cultural Resources at the Alton Coal Field
- 6/14/07 Data Recovery Plan for identified Cultural Resources
- 6/25/07 Revised Data Recovery Plan
- 1/9/08 Draft Outline of Cultural Resource Management Plan, CRMP
- 02/28/08 2nd Revision to Data Recovery Plan
- 02/28/08 Excavation Permit Application
- 03/14/08 CRMP
- 05/23/08 Revised CRMP

On November 2, 2007, the Division sent a letter to Dr. Matthew Seddon, State Historic Preservation Officer, requesting concurrence with the Division's determination and eligibility effect determination for the proposed Coal Hollow Mine. Dr. Seddon concurred with the Division's determination by way of correspondence dated November 20, 2007. However, because of adverse impacts and cumulative effects associated with the lease application on federal land, a Cultural Resource Management Plan, (CRMP) was developed in addition to the Data Recovery plan. To date several revisions to the Data Recovery plan and a Cultural Resource Management Plan, (CRMP); have been submitted to the Division for review and

comment. The CRMP dated 05/23/08 and Data Recovery Plan dated 02/28/08 were the documents included in this review.

CRMP

Introduction – Page 1 – Because of the need for the CRMP to fully describe the entire project area and the complexity of the issues, this section had been expanded to fully describe the project area and cover the compliance needs of UDOGM, OSM, BLM, and other involved agencies. The additional information required to address these deficiencies noted in the CRMP was included in pages 1 through 3, of the revised CRMP and included:

1. *A description of the entire project area, making clear the distinctions between private, BLM, and transportation routes.*
2. *A description of the relevant laws (e.g. NEPA, Section 106, Utah Code 9-8-404, etc.) and how they apply to the project.*
 - a. *This description makes the necessary distinctions between directly and indirectly connected actions. Indirect effects, such as transportation are described here.*
 - b. *The involved agencies and their roles are described in this section.*
3. *The section notes that all involved agencies are aware that while not directly connected, the actions are related, and that therefore a comprehensive approach to Section 106 and Utah Code 9-8-404 compliance is being undertaken via this document.*
4. *A summary of the general cultural resources approach as described is included at the conclusion of this section, page 3, paragraph 2.*

Effected (sic) Environment – Pages 1 on – This section has been revised to:

1. *Include the entire project area, including potential transportation routes, with maps, rather than focusing solely on the archaeology.*
2. *Provide a description of the compliance project and associated compliance issues.*
3. *Table 2 included other cultural resources such as the National Register of Historic Places Historic District in Panguitch.*

Description of Phases – Page 1 and Page 23-24

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Each phase has been revised to supply data for the subsequent phases. This has been clarified in the current description on page 27 of the CRMP. Phase I is described as “mitigation of immediate impacts,” and the descriptions are more clearly integrated with subsequent phases.

1. *in the introduction, these phases are clearly described with the relationships spelled out directly.*
2. *In the expanded discussion, the way the data from Phase I will tie to subsequent phases has been clarified.*
3. *Either in the CRMP or in the Data Recovery Plan clearly describe how sites x, y, & z (presumably all prehistoric) are expected to relate to the other sites in the BLM area – that is how do the Archaic sites in the private area compare to the Archaic sites in the BLM area and the Proto Historic private to BLM?*

Page 24, paragraphs 2 and 3 of the Data Recovery Plan describe how the prehistoric sites, Archaic, in the private area are expected to relate to the other sites in the BLM area – that is how the Archaic sites in the private area compare to the Archaic sites in the BLM area and the Proto Historic private to BLM.

Consequences of Project Phases, Phase II, Page 24 – As currently stated this reads, “Research would precede to Phase II, upon Alton Coal Development, LLC’s acquisition of federal coal managed by the Bureau of Land Management.”

Page 27, paragraph 2 of the revised CRMP states that ***“Phase II and III cover the possible federal undertaking resulting from the lease of the Alton Coal Tract...”*** This revised text is correctly stated.

Please clarify what the relationship is.

The text on Page 27, paragraph 2 through page 31 of the revised CRMP adequately clarifies the relationship of the project phases of the current private and possible future federal coal tracts.

DATA RECOVERY PLAN

Many of the comments on the original data recovery plan have been addressed. The review of the most recent Data Recovery Plan submitted on February 28, 2008 indicated that there were deficiencies that need to be addressed before the plan could be approved. They were outlined as follows:

Research Questions

As currently written, these research questions seem too broad for the collection of sites present. The comments on 12/18/2007 assumed that these questions would actually be for the CRMP where broad over-arching questions forming the context for site-specific research issues should be posed. In the case of these sites, the research questions are so broad that they probably cannot be addressed by the limited range of sites present and the limited work proposed.

The research questions need to be tailored specifically to the sites in question and for what they can address. Clearly describe how sites x, y, & z (presumably all prehistoric) are expected to relate to the other sites in the BLM area – that is how do the Archaic sites in the private area compare to the Archaic sites in the BLM area and the Proto Historic private to BLM.

The geomorphological element is key here especially for informing Phase II and III, but again, the real first or otherwise question here is what data do these sites really offer. Also, there aren't any Fremont/Anasazi sites in this phase – how will that inform later questions? Finally, what if the historic site (or the others for that matter) yield data that goes beyond the scope of your original questions? Will those sites proceed to the next phase?

Goal 2 of the original draft, surface and subsurface

This goal does not appear to be included in the current version of the Data Recovery Plan. It was highly relevant, and was suggested on 12/18/2008 that the question be refined a bit. It was stated that:

In terms of the surface/subsurface question, which we agreed was good and was at least partially met by the excellent random sampling strategy (a provision for expansion would probably cover most other areas); we suggested further clarification of what that question entails. Thus, instead of simply asking, "does the surface represent the subsurface," we recommended elaborating into all the related questions like "Do surface diagnostics reflect overall site dating?" "Are the functional interpretations derived from the surface assemblage supported by the subsurface assemblage?" "Does a site that appears to have significant data based on surface information have such data and what, if any, indicators in the surface assemblage suggest the presence of significant subsurface deposits?" "How much excavation is necessary in order to obtain a representative sample of subsurface artifacts?" "Can geomorphological evidence be effectively used to determine if the surface and subsurface assemblages are chronologically and functionally related?" And so on. Refining these questions may require slight refinements in the excavation/analysis approach.

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Considering the relevancy in the first draft, it is also relevant for the second draft with some refinement. This question is perhaps the most relevant question that the current collection of the sites can address.

Page 25, paragraph 2 of the Data Recovery Plan describes how the surface and subsurface assemblages have been refined to include differences or similarities.

Curation

MOAC does not have a 2008 Provisional Repository Agreement (although the form has been submitted) with the Utah Museum of Natural History. Has MOAC contacted Kara Hurst, Registrar from the UMNH, and obtained an actual Repository Agreement?

For the phase I data recovery, there will need to be a legally executed, signed, transfer of title for the prehistoric artifact recovered from private land, which will grant title to the UMNH. Finally, an outline for how historic artifacts will be curated needs to be included.

This comment is intended as a reminder to the applicant. Page 40 paragraph 3 of the revised Data Recovery Plan includes a description of the curation methods for prehistoric materials. According to the interpretation of the information in this paragraph, a detailed field analysis will be conducted for historic period artifacts the applicant does not intend to collect historic materials.

The following comments and suggested changes pertain to the Federal portion or phase II of the CRMP. They need to be addressed prior to entering this phase of the CRMP. The applicant may chose to address these comments and suggested changes during this review process or prior to obtaining a SMCRA permit for additional federal activities.

CRMP

Consequences of Project Phases, Phase I, Page 23 (also, Phase III Page 24)

The description of the public involvement process on the bottom of this page and on the bottom of Page 24 does not meet the previous suggestions. In an email to the entire project team that was sent on 1/22/2008 it was stated that:

Given the high public interest in this project, and the overall size of the potential effects, I recommend that the public be more involved than is usual (i.e. be more than simply the passive recipients of whatever mitigation project we archaeologists deem they are worthy of receiving). I suggest that planning for public input into the research design and excavation

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approach be established in the CRMP. Let's define "the public" based on the interested parties (more than just USAS, probably also members of the towns of Alton and the surrounding area, tribes, as well as other citizens of the state). Let's then find out what the public are interested in learning and receiving from this project. It is their heritage; their interests should go right into the research design. The public should also be consulted early and often regarding "public mitigation products." We should not simply decide what they want out of it. The CRMP seems to be a good place for laying out a good process for both identifying the relevant public and defining meaningful consultation with that public.

As currently stated, public involvement has already determined that only USAS chapters are relevant. Furthermore, the public involvement occurs well into mitigation efforts and has already determined a particular public outcome. This does not meet the comments provided above. The CRMP needs to include a public involvement plan that:

1. Makes efforts to fully define and identify stakeholders (beyond USAS) who have interests in the cultural resources in this project area. This needs to start at the beginning of the project, not at Phase III (as suggested on Page 24). As currently stated, the Phase I public outcome has already been determined and the only open-ended input will be taken when Phase III is well underway.
2. Provides a process for incorporating public interests and desired mitigation outcomes into the decision of what public products will be part of the project.

In other words, we need to find the public, listen to what they want, weigh and consider the input, and then provide public output that meets those interests and not what a bunch of professional archaeologists think that some small segment of the public would want.

The following additional comments excerpted from Christopher Hansen's, SHPO, email to Matt Seddon on 5/7/08 are worth noting. As the project develops, they will be given consideration:

"Right now, the historic district comes to mind (what does the NR nomination say about Panguitch and particularly Panguitch's Main Street, does it have character defining features that might be impacted by the intrusion of so many new trucks?), what about

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vibrations from the trucks--does UDOT or FHWA have any concrete studies? From what I recall Panguitch also had a Main Street program at one time too, clearly the historic character of their downtown has been an important asset to the community.”

Overarching Research Design (Currently missing from CRMP)

In the email on 12/18/2007, Lori Hunsaker, PLPCO and Matthew Seddon, SHPO communicated that they:

... were initially confused about the relationship of the treatment plan to the agreed-upon CRMP. We now understand it as something that will be part of the overall CRMP, and the research design specified in the draft document will basically form the nucleus of the sections of the CRMP research design that cover non-diagnostic open-air lithic scatters and the historic research design.

Currently there is only a culture history, no research design in the CRMP. The CRMP will need an overarching research design prior to going into Phase II. Assuming that the research questions posed in the current Phase I treatment plan are the “nucleus” as discussed in the comments above, for the moment these could be inserted into the CRMP. However, prior to ultimate finalization of the CRMP, we have the following comments that we recommend be incorporated into this overarching research design:

Previous comments on a draft of this plan were provided in an email to the authors with copies to other team members on 12/18/2007. Comments are confined to areas where those previous comments appear to have not been addressed.

Research Domains and Questions – Pages 24 on – A reference to one portion of the Kern report (page 28), and a very general question about “how systems compare” to Coral Canyon, Quail Creek, and Sand Hollow sites (page 28) are included in this section of the CRMP. More refined research questions are required in order to make data recovery and subsequent research more efficient. Therefore, the following information needs to be incorporated into the Research Domains and Questions section of the CRMP:

Research Domains and Questions

The broader research design needs to incorporate the spate of recent work (e.g. Kern, Sand Hollow, HRA's work near St. George, Joel Janetski's work in Escalante) that provides refined research questions for the broader region and which are applicable to the Alton Amphitheater/Sink Valley area”.

Research Domain 1 – Chronology -

Berry, Chapter 27 in Kern Report Vol IV – Page 581 on Virgin Anasazi dating

Reed, Chapter 29 in Kern Report Vol IV, Page 601, summarized projectile point model could potentially be tested or data from project could be evaluated in terms of model.

Revised chronologies have been proposed by Seddon and Reed, Kern Report Vol VI, Chapter 1, as well as for the Archaic period Vol IV, Chapter 10. These models could be proposed as testable or open to refutation or refinement with specific description of how the data from this area can be used for such issues.

Research Domain 2 – Site Function, Use History, and Artifact Distributions –

Chapter 11 of the BYU Sand Hollow report describes specific site functional types and models that could be evaluated. These types appear amenable to investigation or testing with data from the project sites.

Vol IV, Chapter 22 of the Kern report provides a detailed discussion of Southern Paiute site function and settlement organization and provides a limited test of the model. It seems that the large number of Southern Paiute sites in this project area could really help test this model if the research design were to explicitly consider this research.

Research Domain 3 – Subsistence and Environment

The Sand Hollow report Chapter 11, pages 422-426 provides a detailed discussion of Virgin Anasazi subsistence that can be used to provide more specific research questions.

The Sand Hollow report Chapter 11, pages 426-27 proposes that resource stress results in particular patterns of intensification that the large number of sites in the project area appear directly amenable to addressing.

The Sand Hollow report, Chapter 11, pages 428-434 (and referencing a significant body of work) examines questions of Southern Paiute horticulture that the large number of Late Prehistoric sites seem able to address.

The Sand Hollow report, Chapter 11, pages 435-439 proposes a model of post-contact Southern Paiute subsistence that the sites in the project area may be able to address.

The model of diachronic patterns in faunal exploitation in the Kern report, Vol IV, Chapter 30 and the model of diet breadth through time (Chapter 31) appear to provide fodder for relevant research questions. These questions can be much more refined than the very general questions posed in 3.2 of the draft report.

Research Domain 4 – Technology

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The Kern report, Vol IV, Chapter 34 refines and defines a model of technology and mobility that can be used to develop more refined questions, particularly the conclusions on Page 683.

If thermal features are of interest, as suggested by question 4.2, the Kern report, Vol IV Chapter 9 provides a very explicit model of variation in thermal feature types over time that could be tested if features are found in the project area.

Models of pottery manufacture and mobility, such as Simms and Bright and the Kern report, Vol IV, Chapter 17, appear very relevant to this project area.

The Kern report, Vol IV Chapter 38, provides models of trends in ground stone technology that could be used to refine the ground stone technology issue questions (3.3 and to some degree 4.1)

Research Domain 5 – Settlement Patterns and Mobility

The Sand Hollow report, chapter 11, pages 441-443 provides a number of theoretical models (population packing, hinge points, Virgin Anasazi subsistence, etc.) that while applied in the Sand Hollow report to the St. George Basin do not seem irrelevant here and which could be adapted for this project.

Vol IV, Chapter 14 of the Kern report, while comparing Fremont and Virgin Anasazi settlement patterns does provide new models of Virgin Anasazi settlement type that could be explicitly examined via research questions based on the model.

Vol IV, Chapter 20 of the Kern report provides a model of Late Prehistoric demography that, given the long time span of the sites in the project area and the large number of Late Prehistoric sites, could be tested with data from the project area.

Given the large number of sites and time breadth in the project area, the issues raised in the model of land productivity and hunter gatherer settlement strategies in the Kern Report (Vol IV, Chapter 33) could be adapted or used as the basis for forming more refined questions than the ones currently posed.

Findings:

The information is adequate to meet the requirements of this section of the regulations. Approval from the PLPCO for the excavation of the following eligible sites was granted on July 11, 2008 and received by the Division on July 13, 2008. This approval included sites 42KA2042, 42KA2068, 42KA6104, 42KA6105, 42KA6106, 42KA6107 and 42KA6108.

Approval from the PLPCO for the excavation of the following eligible site was granted on November 12, 2008 and received by the Division on November 13, 2008. This approval included sites 42KA2044. SHPO concurrence for this site was received by the Division on November 13, 2008.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

Plant communities within the proposed permit area and reference areas, *(vegetative communities in adjacent areas that represent vegetative communities that will be disturbed)*, for these surface mining and reclamation activities are described in Volume 2, Chapter three of the application. The descriptions include acreage, percent of total by community, total living cover, percent cover by shrubs, grasses, forbs and woody plant species, for:

- The proposed Disturbed Sagebrush/Grass Community
- The Sagebrush/Grass Reference Area
- The Proposed Disturbed Meadow (Dry) Community
- The Meadow (Dry) Reference Area
- The Proposed Disturbed Pinyon-Juniper Community
- The Pinyon-Juniper Reference Area
- The Proposed Disturbed Pasture Land Community
- The Pasture Land Reference Area
- The Proposed Disturbed Oak brush Community
- The Oak Brush Reference Area
- The Proposed Disturbed Meadow Community
- The Meadow Reference Area
- Other Meadow Communities

Tables 3-1 through 3-33 include living cover and frequency by plant species, total cover and composition and woody species density. Table 3-34 includes ***"Biomass Production of Plant Communities in the Coal Hollow Permit Area"***. These figures are represented in pounds per acre for each community.

Appendices 3-2 and 3-4 include the methodologies, *(maps, sampling design and transect/quadrant placement, cover and composition, woody species density, sample size and adequacy, statistical analyses, photographs and threatened and endangered plant species)*, results, summary and discussion and color photographs for the referenced communities.

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Findings:

The information is adequate to predict the potential for re-establishing vegetation and the productivity of the land within the proposed permit area for surface coal mining and reclamation activities. The information is adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

Fish and Wildlife information for the permit and adjacent areas is included in Volume 2, Chapter 3, Section 322. Agency consultation and studies conducted are listed on page 3-32 and 3-33. Site specific resource information as described in section **R645-301-322.200** of the regulations is included in the confidential portion of the application. Threatened, Endangered, and Candidate plant and animal species for Kane County are included in table 3-35. A brief narrative for each species describing the rationale for their absence and surveys conducted to verify such is included in table 3-35 of the application.

High Value habitats for black bear, rocky mountain elk, mule deer, and sage grouse are described on page 3-35 of the application. *In 2006 UDWR changed the terms utilized for habitat designations. The term "high-value" habitat are now designated as "crucial", and should be changed as such throughout the document.* The information is derived from the DWR GIS database indicating that these four species occur within or adjacent to the proposed disturbed area. Additional information for the sage grouse is included in Appendices 3-1 and 3-3.

Maps and Aerial Photographs

Vegetation communities and reference areas are delineated on drawing 3-1. Drawings 3-2 through 3-5 include the habitat for the high value wildlife species, black bear, rocky mountain elk, mule deer, and sage grouse. Drawing 3-1 has been revised to include vegetation information pertaining to the county road realignment but does not include the proposed relocation of the county road.

Findings:

The information is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with

R645-301-322.200, In 2006 UDWR changed the terms utilized for habitat designations.

The term "high-value" habitat are now designated as "crucial", the new designation needs to be noted in the appropriate section(s) of the application. [JH]

Drawing 3-1 needs to be revised to include the proposed location of the county road. [JH]

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.22; R645-301-411.

Analysis:

Chapter 4, Section 410 describes the current land uses for the Coal Hollow project. They include zoning for agricultural use, grazing for livestock production, recreation, hunting and wildlife habitat with an average annual precipitation of 16 inches. Drawing 1.3 describes the land status, (private), of the proposed permit area. A description of the land use plan for the private landowners is included in the following paragraphs:

The Management Plan for the Richard Dame Property, the current land use of Mr. Dame's property is forage for domestic livestock and some wildlife species. The land includes irrigated pasture for cattle and some horses, native stands of pinyon juniper and sage brush communities as noted on map 3-1, Vegetation. Mr. Dame has expressed an interest to return his property to pasture land that focuses on domestic livestock and includes some plant species for wildlife habitat. Table 3-19 includes the seed mix, native and introduced grasses and forbs, to be planted to meet the landowner's request. A copy of the signed management plan is included in appendices 4-3 and 4-4.

The Management Plan for the Burton Pugh Property, the land owned by Mr. Pugh in the permit area provides forage for livestock and some wildlife species as well. The land includes non-irrigated pastureland, meadows, sagebrush/grass, pinyon juniper and oak brush communities as noted on map 3-1. The livestock on the property are mostly cattle and sometimes horses. Mr. Pugh has expressed an interest in restoring his land to its original use or better condition for livestock and wildlife habitat. In order to accomplish this pasture, lands will be reclaimed with the focus on domestic livestock. The seed mix will include plant species used by wildlife species in addition to native and introduced grasses. A portion of the property will be reclaimed to sage-grouse habitat as well as mined areas that were interspersed with pinyon juniper. A copy of the signed management plan is included in appendices 4-3 and 4-4.

Land capability information is included on page 4-4 of Chapter 4. Chapter 3 describes land capability in terms of percent cover for the vegetative communities in the permit and

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adjacent areas. The application also includes a description of the land capability in terms of supporting livestock, 1.125 AUM's, (animal unit month) for the Pugh and Dames properties.

Findings:

The information is adequate to meet the requirements of this section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Affected Area Boundary Maps

Affected area boundary maps for vegetation and fish and wildlife information are located in Volume 3, Chapter 5, Plates 5-1, 2, 9, 10, 13, 14, and 5.

Archeological Site Maps

Are included in the Data Recovery plan in the confidential section of the application.

Cultural Resource Maps

Are included in the Data Recovery plan in the confidential section of the application.

Existing Surface Configuration Maps

Drawing 5-1 includes the existing surface configuration.

Monitoring and Sampling Location Maps

Drawing 3-1 includes the vegetation monitoring and reference area locations permit area boundary and coal ownership boundaries.

Permit Area Boundary Maps

Drawing 3-1 includes the vegetation monitoring and reference area locations permit area boundary and coal ownership boundaries.

Vegetation Reference Area Maps

Drawing 3-1 includes the vegetation monitoring and reference area locations permit area boundary and coal ownership boundaries.

Findings:

The information is adequate to meet the requirements of this section of the regulations.

OPERATION PLAN

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR784.17; R645-301-411.

Analysis:

According to the archaeological survey performed by Montgomery Archaeological Consultants Inc., there are no public parks within the proposed permit area, (Appendix 4-1).

Findings:

The information is adequate to meet the requirements of this section of the regulations.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

Analysis:

Appendix 4-2 includes an Air Pollution Control Plan that has been submitted to the Utah Division of Air Quality on May 8, 2007. Prior to receiving a mining permit, the Applicant must have an Air Quality Approval Order from the Division of Air Quality. The application has been revised to provide a description of the status and location of the dust control plan, Appendix 4-2.

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Findings:

The information is not adequate to meet the requirements of this section of the regulations. Prior to approval, the following information must be provided in accordance with; R645-301-244, -301-420; the application needs to include written approval of the plan from the Division of Air Quality. [JH]

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

Protection and Enhancement Plan

Procedures to minimize adverse impacts to fish and wildlife are included in Volume 2, Chapter 3, Section 333, pages 3-40 through 3-43 and appendices 3.1 and 3.3 of the submittal received in June of 2007 and Chapter 3, Section 333, pages 3-42 through 3-49 and appendix 3-5 of the submittal received in December of 2008.

Protection, The application needs to include a wildlife awareness program for the employees that include avoidance, harassment, situations in transportation corridors and speed limits. For the affected areas within the Division's scope of responsibility, the awareness program needs to include measures to efficiently monitor, (truck drivers could maintain a log of animals hit and/or killed), and remove road kill by haul trucks, including but necessarily limited to: mule deer, elk, sage grouse, other birds and smaller animals. Further, golden and bald eagles feeding on carcasses near roads are exposed to road kill risks. Specifically, the UDWR is concerned with impacts along the State Routes 89 and 20. Although the Division's scope of authority is primarily focused on affected areas and primary haul roads an awareness program that voluntarily includes these state corridors could be included in the application. As a mitigative effort some mining companies have offered to contribute to the DWR's road kill clean up program, (personal conversation with Tony Wright, DWR raptor biologist). [JH]

The application needs to include a predator control plan that addresses how wildlife species and human activity will be managed to protect Sage Grouse.

Enhancement, There is a given assumption that wildlife species will be displaced during the active phase of mining operations. In the case of surface mining, ongoing reclamation measures are intended to offset the displacement or restore the habitat as an enhancement measure beneficial to certain wildlife populations. As noted in the previous analysis, the applicant needs to include a narrative that describes how impacts to the habitat for the high value wildlife species, black bear, rocky mountain elk, and mule deer will be mitigated or enhanced

during the active phase of mining operations. Chapter 3, page 3-48, "SAGEBRUSH and OTHER HABITATS", includes some information about these species during reclamation but does not include a narrative that describes how impacts to the habitat for the high value wildlife species, black bear, rocky mountain elk, and mule deer will be mitigated or enhanced during the active phase of mining operations. The application does not include information that addresses this deficiency. The applicant could describe the beneficial uses to the referenced species that have been achieved to date by the removal of the Pinyon Juniper. A comparison of acreages should be included, disturbed area footprint versus habitat enhancement, in the application. [JH]

The focus of the current application for protection and enhancement is the Greater Sage Grouse, listed as a sensitive species by the DWR heritage group and a candidate species by the USFWS. *Appendices 3-1, "Alton Sage Grouse Habitat Assessment and Mitigation Plan, 3-3, "Sage-Grouse Distribution and habitat improvement Alton, 3- 5 "Alton Sage-Grouse Habitat Mitigation Plan" and Section 333 of Chapter 3* are the main documents included in the review of this section of the application.

The data obtained from comparing the leks and roost sites indicates that there are sites with enough similarity that could be used for breeding and roosting areas.

Appendix 3- 5, "Alton Sage-Grouse Habitat Mitigation Plan"

1.) Minimize impacts to the birds from mining activities

The application includes a methodology for relocating the birds to these alternative sites as noted on page 12 of appendix 3-5, appendix 3-1 and page 3-43 of chapter 3. "During the mating season decoys and calls will be used to lure the birds to alternative lek sites". DOGM and DWR can support the decoy idea; however this document reads as if it is certain to work, just work because it did for a researcher in 1978. The failure during 2008 indicates that this mitigation needs methodology improvements. In the spirit of full disclosure, this document needs to include a short summary of that effort and detail exactly how the applicant intends to improve the technique. For example, the idea to include white markings on the decoys may not work, and is based on one or two anecdotal examples. Adding white might deter the birds. It is suggest that the application includes a simple experimental design to test the techniques before excavating the lek. This could be conducted on alternative populations, but needs to be attempted on site this season. [JH]

The application needs to include a discussion of additional studies or examples where this has worked successfully or where it has been tried and failed and to compare conditions between these studies and the Coal Hollow Mine. [JH]

The mitigation plan needs to include the distances from the nearby alternative site to

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the existing lek or the mining activities; this information will be used to evaluate whether the action is likely to succeed based on the anticipated levels of noise and human disturbance and in comparison to the study by Eng et al. (1979). If the site is too close to mining activities, it is unlikely to succeed; however, trying to lure the birds over too great a distance may also prove ineffective. The Plan should also discuss or evaluate the habitat features of the new site and whether they are conducive to sage-grouse lekking. [JH]

The second action that may minimize impacts to birds is to stockpile spoils from mining operation up to 20 feet higher on a ridgeline, which may create a more distinct visual barrier than currently exists. This barrier between the mining activities and the conservation area may benefit the birds by blocking the view of human activities and may reduce noise levels. However, the plan needs to include an analysis of the berm for its ability to serve as a perch or hiding place for predators and/or whether the grouse consider the feature a threat. It would be helpful for evaluation purposes to understand where the ridge is located in relation to the conservation area, leks and mining areas. [JH]

2.) Enhance current sage-grouse habitat

The Plan cites a study in Oregon by Bates et al. (2000) which found a significant improvement in understory productivity and diversity after removal of juniper trees, the Plan needs to include a comparison of the Alton site to the site in the Bates paper to determine if similar results be expected, or if there are substantial differences between the two sites (e.g., precipitation, climate, vegetation types) or would invasive species (e.g., cheatgrass) be of greater concern at the Alton site? [JH]

The Plan recommends complete tree removal to eliminate perches and cover for predators and to improve understory growth. Rather than using a tract excavator and dump trucks to haul the trees offsite, a brush bullhog should be used to shred the trees. This equipment will successfully remove the tree, but by mulching the trees has added benefits of providing micro-sites for greater seed germination, improve moisture retention, reduce soil erosion, and return more nutrients to the soils rather than moving nutrients offsite. In addition, there will likely be less soil disturbance by having only one piece of equipment onsite and there is less chance of introducing noxious or invasive plants since dump trucks will not be moving between sites. [JH]

The plan needs to include a commitment to conduct tree removal activities outside of the avian nesting season to avoid the take of eggs or young of other migratory birds. [JH]

The Plan contemplates mechanical sagebrush treatments in addition to removal of juniper, pine and Gambel oak; however, under certain conditions, removal of sagebrush can be detrimental to sage-grouse. There is not enough information in the Plan (e.g., location of treatments, size of treatments, need for treatments, type of treatments, or current habitat

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condition) to adequately evaluate the need or potential success of sagebrush removal. The Sagebrush treatments need to be specifically targeted to the needs of the local sage-grouse population and to address the limiting factors in the sagebrush habitat. Again, this information may be available in other sections of the larger document, including metrics to determine success. [JH]

3) Create a conservation area for the sage-grouse that will never be mined

The third goal is to establish a core sage-grouse Conservation Area that will be protected from all mining activities. The Plan needs to specify the location, size or current condition of the area. It is also unclear why was this area selected for protection, for example whether there is good sage-grouse habitat or a lack of mining resources. The Plan does anticipate the removal of trees from the Conservation Area, suggesting there is some ability to improve the habitat quality for sage-grouse. We recommend a bullhog for tree removal (see earlier comments) and that these activities occur outside of the breeding season. The Plan mentions several uses within the Conservation Area including roosting, breeding and nesting. The plan needs to include information that demonstrates that the area is large enough to support all three and if the trees are removed, will this diminish the value of the area for roosting? It is also unclear if sage-grouse already use the area and what impact tree clearing will have on the grouse. The same is true for how grouse will respond to the mining activities. The distance of the Conservation Area from active mining activities is not specified in the Plan, nor its relation to the new lek. This information needs to be provided in order to evaluate the success of the Conservation Area. [JH]

4) Provide a corridor between north (Heut's Ranch) and south (Alton Sink Valley) populations to promote gene transfer and increase population numbers

The fourth goal is to reestablish connectivity of the grouse populations between the Alton and Heut's Ranch by removing juniper trees from approximately 1700 acres of land between these two areas. Existing studies show that there is already some movement of birds between Alton and Heut's Ranch; therefore, this action may increase future movement and/or genetic diversity; however, it is uncertain whether this action alone will result in the desired outcome. One of the purposes of this action is to facilitate a more rapid recovery of the Alton grouse population after the mining is completed (i.e., through greater connectivity); however, this assumes that there is a viable grouse population at Heut's Ranch in the future. The plan needs to include mitigation measures to protect and improve the habitat quality near Heut's Ranch. We also recommend that junipers be removed with a bullhog that grinds the trees rather than pulling and removing them. Tree removal activities should occur outside the avian nesting season. [JH]

5) Restore land disturbed by mining activities to enhance sage-grouse habitat

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The Plan calls for returning the vegetation to pre-mining conditions; however, if there is an opportunity to improve habitat conditions, that should be explored. Bareroot and containerized plants should be in addition to and not in place of forbs seed. [JH]

The application needs to include a plan for monitoring the Sage grouse during the reclamation liability period. [JH]

Alton Sage-Grouse Habitat Assessment and Mitigation Plan, (appendix 3-1)

Page 20, paragraph 1, The applicant needs to describe how the “*Conservation Area will be enhanced for Sage-Grouse especially during the breeding season*”. The reviewer is referred to page 3-47, there is no information on this page that describes how the “*Conservation Area will be enhanced for Sage-Grouse especially during the breeding season*” [JH]

Page 20, paragraph 3, “*Intact sagebrush sites will be cleared of all young Juniper trees*”, these areas need to be identified. Drawing 3-5, Sage Grouse brood habitat and Conservation area map, identifies the location of the 72 acre juniper removal plot. The intact sage brush and surrounding juniper woodland areas need to be identified. A time line for implementation needs to be included for the removal of young junipers and the cutting back of the juniper woodlands. [JH]

Page 20, paragraph 3, “*Juniper woodlands surrounding intact stands can be cut back to increase patch size and the amount of area that has potential for nest site selection by hens*”, these areas need to be identified on a vegetation map and quantified in terms of acreages. The application needs to include a clear, concise and comprehensive plan that includes the following criteria

- A detailed description of the project
- A map, 1”=500’, that is consistent with the current vegetation maps in the application that clearly identifies the vegetation and the project area.
- Right of entry from the surface owners if other than ACDC
- A detailed description of the methodology and a time line for implementation.
- A seed mix, methodology for dispersal and rate of application.
- A description of the site restoration to prevent erosion.
- Funding

[JH]

This is the same area as the Sage Grouse brood habitat and Conservation area. Apparently there are two separate time lines.

Page 21, paragraph 3, “*Long term mine plans will remove hundreds of acres of juniper woodlands*”. The applicant needs to perhaps quantify this statement. How many acres per year will be removed for the development of Sage-Grouse habitat? Areas need to be listed in the application and delineated on a vegetation map. Acquisition of the federal leases has no bearing

on the sage grouse mitigation plan. If the plan includes mitigation efforts on federal land ACD will need to get approval from the respective agency. The application needs to include the location, acreages and a time line for removal of the junipers. [JH]

Page 22, paragraph 3, *"The Alton Sage-Grouse population will be enhanced by importing birds from nearby populations that are relatively large and stable, the applicant needs to include a time table, number of birds and appropriate clearances from DWR, USFWS, BLM."* Meetings with DWR, (personal conversations with Neal Perry) indicate that transplanting birds from an alternative lek population would not be a prudent mitigation measure at this time. The appendix needs to be revised accordingly. [JH]

Page 22 paragraph 3 and page 22 paragraph 1, *Meetings with DWR*, (personal conversations with Neal Perry) indicate that transplanting birds from an alternative lek population would not be a prudent mitigation measure at this time. The appendix needs to be revised accordingly. [JH]

Page 23, paragraph 3, Pages 3-48 and 3-74 of the application describes the monitoring and mechanical treatment controls of invasive species.

Sage-Grouse Distribution and habitat improvement Alton, Utah, (appendix 3-3)

This document includes a mitigation plan to improve sage-grouse habitat, increase bird population levels and maintain optimal habitat for nesting, brood rearing and summer and winter use. Issues discussed include:

- Sage-grouse population and distribution monitoring,
- Results of the 2007 sage-grouse trapping and blood sampling efforts,
- Attempts to lure birds from lek to lek,
- Mitigation implementation strategies,
- Lek search and aerial habitat assessment and,
- Proposed habitat and predator control mitigation.

Page 9, Brood Rearing habitat improvement, the Division is requesting the applicant to provide an update on the status of the development of the alfalfa field. The applicant needs to describe in detail the application techniques that will be used in lieu of developing an alfalfa field for brood rearing habitat. [JH]

Page 9, Brood Rearing habitat improvement paragraph 2, has the research on plant insect relationships been completed? The research on the plant insect relation ships needs to be completed and included in the application. [JH]

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Page 9, Predator control paragraph 3, the applicant needs to provide an update on the status of predator control arrangements. The application needs to include a complete and adequate predator control plan, see comments under Protection and Enhancement. [JH]

Page 10, Habitat connectivity, the applicant needs to provide an update on the status of juniper removal perhaps in terms of acres of restored habitat and a map delineating the restored areas. Pages 3 through 9, "*Reestablishing Connectivity between Alton and Heut's Ranch*" of the new appendix 3-5 include a general description of the connectivity project and supportive research. The application needs to include a clear, concise and comprehensive habitat connectivity plan that includes at a minimum:

- A detailed description of the project
- A map, 1"=500', that is consistent with the current vegetation maps in the application that clearly identifies the vegetation and the project area.
- Right of entry from the surface owners if other than ACDC * note it is the responsibility of the applicant to provide that information.
- A detailed description of the methodology.
- A seed mix, methodology for dispersal and rate of application.
- A description of the site restoration to prevent erosion.
- A detailed time line for implementation
- Funding

The remaining proposed habitat conservation and mitigation efforts, items 2 through 6 noted on page 2 of appendix 3-5, the goals on page 3-42 of chapter 3, the plans described in Appendix 3-1, pages 20 through 23 and the proposed mitigation objectives outlined on pages 9 and 10 of appendix 3-3 also need to include the referenced criteria as appropriate to develop one clear, concise and comprehensive sage grouse mitigation plan. [JH]

Chapter Three

Page 3-43

"...mining activities will be minimized so that the lowest disturbance will be created during the breeding season at areas adjacent to the original lek". The term "minimized" is too subjective and "lowest disturbance needs to be defined. Technically all areas adjacent to the lek will be disturbed and there are no specific provisions to avoid the lek during the breeding season. The application needs to include a commitment not to disturb the lek during the breeding season including some buffer. [JH]

Page 3-43

"...In sites used by sage-grouse for breeding and roosting that had previous livestock grazing, livestock will be used post-reclamation to maintain similar vegetation characteristics as

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pre-mining conditions.” This logic is at best difficult to follow and the action is not acceptable as sage-grouse mitigation. Much of the “pre-mining condition” is over utilized rangeland. Indeed historic (i.e. the last 100 years) is likely at least partially the cause of long-term PJ encroachment and loss of understory components that are important for sage-grouse brood-rearing. In other words, resuming pre-mining land use will (in essence) will result in a population of sage-grouse that is “vulnerable to elimination”. Restoring this area to current land use regimes is not beneficial to an already vulnerable sage-grouse and can not be considered mitigation. The applicant needs to revise this section of the application.

Example: During the October 1, 2 tour of Robinson creek; it was obvious that the landowner actively partakes in sage-brush removal treatments (maybe the herbicide spike?). Further, excessive soil compaction and almost complete lack of understory (other than non-native cow forage like crested wheat-grass) indicate a heavily overgrazed pasture. This pre-mining land use is in now way beneficial to sage-grouse. [JH]

3-46. Establishment of a Core Sage-Grouse Conservation Area.

The applicant needs to simply execute treatments to this area to the maximum extent feasible. These treatments take time, at least a couple of years. Given the timeline to excavate the private leases, these treatments need to happen this fall...really two falls ago, and the area needs to be rested from cattle grazing (standard is typically at least two years of resting) to ensure establishment of planted forbs and grasses. [JH]

Endangered and Threatened Species

Threatened, Endangered, and Candidate plant and animal species for Kane County are included in table 3-35. As noted in Section 322.210. A narrative for each species describing the rationale for their absence and surveys conducted to verify such is included in Appendix 3-4 page 5 the application.

Colorado Fish Recovery Program

According to the information in the application, the proposed mining operations are not located within the boundaries of the Upper Colorado River Basin. Therefore, the application would not need to include mine water consumption calculations in acre feet per year for the four endangered fish species included in the Colorado Fish Recovery program.

Bald and Golden Eagles

This section needs to include a narrative about each species including their status within ½ mile of the proposed disturbed area. [JH]

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Wetlands and Habitats of Unusually High Value for Fish and Wildlife

Wetland areas are described on page 3-73 of the application and chapter 7. According to the application, there are wetland areas in the permit area. Page 3-73 refers the reviewer to page 3-40 of the application for protection measures for these areas. The information on page 3-40 does not describe protection and enhancement measures for the wetland areas. [JH]

Findings:

The focus of the current application for protection and enhancement is the Greater Sage Grouse, listed as a sensitive species by the DWR heritage group and a candidate species by the USFWS. Appendices 3-1, "Alton Sage Grouse Habitat Assessment and Mitigation Plan," 3-3, "Sage-Grouse Distribution and habitat improvement Alton, 3- 5 "Alton Sage-Grouse Habitat Mitigation Plan" and Section 333 of Chapter 3 are the main documents included in the review of this section of the application. These finding include consultation with the DWR and FWS. The information is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with,

R645-301-322, -301-333, -301-342, -301-358, Protection and Enhancement Plan.

Protection. The application needs to include a wildlife awareness program for the employees that include avoidance, harassment, situations in transportation corridors and speed limits. For the affected areas within the Division's scope of responsibility, the awareness program needs to include measures to efficiently monitor, (truck drivers could maintain a log of animals hit and/or killed), and remove road kill by haul trucks, including but necessarily limited to: mule deer, elk, sage grouse, other birds and smaller animals. Further, golden and bald eagles feeding on carcasses near roads are exposed to road kill risks. Specifically, the UDWR is concerned with impacts along the State Routes 89 and 20. Although the Division's scope of authority is primarily focused on affected areas and primary haul roads an awareness program that voluntarily includes these state corridors could be included in the application. As a mitigative effort some mining companies have offered to contribute to the DWR's road kill clean up program, (personal conversation with Tony Wright, DWR raptor biologist). • The application needs to include a predator control plan that addresses how wildlife species and human activity will be managed to protect Sage Grouse. • Enhancement, There is a given assumption that wildlife species will be displaced during the active phase of mining operations. In the case of surface mining, ongoing reclamation measures are intended to offset the displacement or restore the habitat as an enhancement measure beneficial to certain wildlife populations. As noted in the previous analysis, the applicant needs to include a narrative that describes how impacts to the habitat for the high value wildlife species, black bear, rocky mountain elk, and mule deer will be mitigated or enhanced during the active phase of mining operations. Chapter 3, page 3-48, "SAGEBRUSH and OTHER

HABITATS”, includes some information about these species during reclamation but does not include a narrative that describes how impacts to the habitat for the high value wildlife species, black bear, rocky mountain elk, and mule deer will be mitigated or enhanced during the active phase of mining operations. The application does not include information that addresses this deficiency. The applicant could describe the beneficial uses to the referenced species that have been achieved to date by the removal of the Pinyon Juniper. A comparison of acreages should be included, disturbed area footprint versus habitat enhancement, in the application. [JH]

R645-301-322, -301-333, -301-342, -301-358: ongoing from Task 2910. Appendix 3- 5 “Alton Sage-Grouse Habitat Mitigation Plan” **1.) Minimize impacts to the birds from mining activities.** The application includes a methodology for relocating the birds to these alternative sites as noted on page 12 of appendix 3-5, appendix 3-1 and page 3-43 of chapter 3. “During the mating season decoys and calls will be used to lure the birds to alternative lek sites”. DOGM and DWR can support the decoy idea; however this document reads as if it is certain to work, just because it did for a researcher in 1978. The failure during 2008 indicates that this mitigation needs methodology improvements. In the spirit of full disclosure, this document needs to include a short summary of that effort and detail exactly how the applicant intends to improve the technique. For example, the idea to include white markings on the decoys may not work, and is based on one or two anecdotal examples. Adding white might deter the birds. It is suggested that the application include a simple experimental design to test the techniques before excavating the lek. This could be conducted on alternative populations, but needs to be attempted on site, this season. • The application needs to include a discussion of additional studies or examples where this has worked successfully or where it has been tried and failed and to compare conditions between these studies and the Coal Hollow Mine. • The mitigation plan needs to include the distances from the nearby alternative site to the existing lek or the mining activities; this information will be used to evaluate whether the action is likely to succeed based on the anticipated levels of noise and human disturbance and in comparison to the study by Eng et al. (1979). If the site is too close to mining activities, it is unlikely to succeed; however, trying to lure the birds over too great a distance may also prove ineffective. The Plan should also discuss or evaluate the habitat features of the new site and whether they are conducive to sage-grouse lekking. • The second action that may minimize impacts to birds is to stockpile spoils from mining operation up to 20 feet higher on a ridgeline, which may create a more distinct visual barrier than currently exists. This barrier between the mining activities and the conservation area may benefit the birds by blocking the view of human activities and may reduce noise levels. However, the plan needs to include an analysis of the berm for its ability to serve as a perch or hiding place for predators and/or whether the grouse consider the feature a threat. It would be helpful for

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evaluation purposes to understand where the ridge is located in relation to the conservation area, leks and mining areas. [JH]

2.) Enhance current sage-grouse habitat. The Plan cites a study in Oregon by Bates et al. (2000) which found a significant improvement in understory productivity and diversity after removal of juniper trees, the Plan needs to include a comparison of the Alton site to the site in the Bates paper to determine if similar results be expected, or if there are substantial differences between the two sites (e.g., precipitation, climate, vegetation types) or would invasive species (e.g., cheatgrass) be of greater concern at the Alton site? •The Plan recommends complete tree removal to eliminate perches and cover for predators and to improve understory growth. Rather than using a tract excavator and dump trucks to haul the trees offsite, a brush bullhog should be used to shred the trees. This equipment will successfully remove the tree, but by mulching the trees has added benefits of providing micro-sites for greater seed germination, improve moisture retention, reduce soil erosion, and return more nutrients to the soils rather than moving nutrients offsite. In addition, there will likely be less soil disturbance by having only one piece of equipment onsite and there is less chance of introducing noxious or invasive plants since dump trucks will not be moving between sites. •The plan needs to include a commitment to conduct tree removal activities outside of the avian nesting season to avoid the take of eggs or young of other migratory birds. •The Plan contemplates mechanical sagebrush treatments in addition to removal of juniper, pine and Gambel oak; however, under certain conditions, removal of sagebrush can be detrimental to sage-grouse. There is not enough information in the Plan (e.g., location of treatments, size of treatments, need for treatments, type of treatments, or current habitat condition) to adequately evaluate the need or potential success of sagebrush removal. The Sagebrush treatments need to be specifically targeted to the needs of the local sage-grouse population and to address the limiting factors in the sagebrush habitat. Again, this information may be available in other sections of the larger document, including metrics to determine success. [JH]

3) Create a conservation area for the sage-grouse that will never be mined. The third goal is to establish a core sage-grouse Conservation Area that will be protected from all mining activities. The Plan needs to specify the location, size or current condition of the area. It is also unclear why was this area selected for protection, for example whether there is good sage-grouse habitat or a lack of mining resources. The Plan does anticipate the removal of trees from the Conservation Area, suggesting there is some ability to improve the habitat quality for sage-grouse. We recommend a bullhog for tree removal (see earlier comments) and that these activities occur outside of the breeding season. The Plan mentions several uses within the Conservation Area including roosting, breeding and nesting. The plan needs to include information that demonstrates that the area is large enough to support all three and if the trees are removed, will this diminish the value of the area for roosting? It is also unclear if sage-grouse

already use the area and what impact tree clearing will have on the grouse. The same is true for how grouse will respond to the mining activities. The distance of the Conservation Area from active mining activities is not specified in the Plan, nor its relation to the new lek. This information needs to be provided in order to evaluate the success of the Conservation Area. [JH]

4) Provide a corridor between north (Heut's Ranch) and south (Alton Sink Valley) populations to promote gene transfer and increase population numbers. The fourth goal is to reestablish connectivity of the grouse populations between the Alton and Heut's Ranch by removing juniper trees from approximately 1700 acres of land between these two areas. Existing studies show that there is already some movement of birds between Alton and Heut's Ranch; therefore, this action may increase future movement and/or genetic diversity; however, it is uncertain whether this action alone will result in the desired outcome. One of the purposes of this action is to facilitate a more rapid recovery of the Alton grouse population after the mining is completed (i.e., through greater connectivity); however, this assumes that there is a viable grouse population at Heut's Ranch in the future. The plan needs to include mitigation measures to protect and improve the habitat quality near Heut's Ranch. We also recommend that junipers be removed with a bullhog that grinds the trees rather than pulling and removing them. Tree removal activities should occur outside the avian nesting season. [JH]

5) Restore land disturbed by mining activities to enhance sage-grouse habitat. The Plan calls for returning the vegetation to pre-mining conditions; however, if there is an opportunity to improve habitat conditions, that should be explored. Bareroot and containerized plants should be in addition to and not in place of forbs seed. •The application needs to include a plan for monitoring the Sage grouse during the reclamation liability period. [JH]

R645-301-322, -301-333, -301-342, -301-358, Appendix 3-1 "Alton Sage-Grouse Habitat Assessment and Mitigation Plan" Page 20, paragraph 1, The applicant needs to describe how the "Conservation Area will be enhanced for Sage-Grouse especially during the breeding season". The reviewer is referred to page 3-47, there is no information on this page that describes how the "Conservation Area will be enhanced for Sage-Grouse especially during the breeding season." • Page 20, paragraph 3, "Intact sagebrush sites will be cleared of all young Juniper trees", these areas need to be identified. Drawing 3-5, Sage Grouse brood habitat and Conservation area map, identifies the location of the 72 acre juniper removal plot. The intact sage brush and surrounding juniper woodland areas need to be identified. A time line for implementation needs to be included for the removal of young junipers and the cutting back of the juniper woodlands. • Page 20, paragraph 3, "Juniper woodlands surrounding intact stands can be cut back to

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increase patch size and the amount of area that has potential for nest site selection by hens”, there areas need to be identified on a vegetation map and quantified in terms of acreages. The application needs to include a clear, concise and comprehensive plan that includes the following criteria

- A detailed description of the project
 - A map, 1”=500’, that is consistent with the current vegetation maps in the application that clearly identifies the vegetation and the project area.
 - Right of entry from the surface owners if other than ACDC
 - A detailed description of the methodology and a time line for implementation.
 - A seed mix, methodology for dispersal and rate of application.
 - A description of the site restoration to prevent erosion.
 - Funding
- This is the same area as the Sage Grouse brood habitat and Conservation area. Apparently there are two separate time lines. Page 21, paragraph 3, “Long term mine plans will remove hundreds of acres of juniper woodlands”. The applicant needs to perhaps quantify this statement. How many acres per year will be removed for the development of Sage-Grouse habitat? Areas need to be listed in the application and delineated on a vegetation map. Acquisition of the federal leases has no bearing on the sage grouse mitigation plan. If the plan includes mitigation efforts on federal land ACD will need to get approval from the respective agency. The application needs to include the location, acreages and a time line for removal of the junipers. • Page 22, paragraph 3, “The Alton Sage-Grouse population will be enhanced by importing birds from nearby populations that are relatively large and stable, the applicant needs to include a time table, number of birds and appropriate clearances from DWR, USFWS, BLM. Meetings with DWR, (personal conversations with Neil Perry) indicate that transplanting birds from an alternative lek population would not be a prudent mitigation measure at this time. The appendix needs to be revised accordingly. • Page 22 paragraph 3 and page 22 paragraph 1, Meetings with DWR, (personal conversations with Neil Perry) indicate that transplanting birds from an alternative lek population would not be a prudent mitigation measure at this time. The appendix needs to be revised accordingly. [JH]

R645-301-322, -301-333, -301-342, -301-358, Appendix 3-3, “Sage-Grouse Distribution and habitat improvement Alton, Utah.” This document includes a mitigation plan to improve sage-grouse habitat, increase bird population levels and maintain optimal habitat for nesting, brood rearing and summer and winter use. Issues discussed include:

- Sage-grouse population and distribution monitoring,
- Results of the 2007 sage-grouse trapping and blood sampling efforts,

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- Attempts to lure birds from lek to lek,
- Mitigation implementation strategies,
- Lek search and aerial habitat assessment and,
- Proposed habitat and predator control mitigation.

Page 9, Brood Rearing habitat improvement, the Division is requesting the applicant to provide an update on the status of the development of the alfalfa field. • The applicant needs to describe in detail the application techniques that will be used in lieu of developing an alfalfa field for brood rearing habitat. • Page 9, Brood Rearing habitat improvement paragraph 2, has the research on plant insect relationships been completed? The research on the plant insect relationships needs to be completed and included in the application. • Page 9, Predator control paragraph 3, the applicant needs to provide an update on the status of predator control arrangements. The application needs to include a complete and adequate predator control plan, see comments under Protection and Enhancement. • Page 10, Habitat connectivity, the applicant needs to provide an update on the status of juniper removal perhaps in terms of acres of restored habitat and a map delineating the restored areas. Pages 3 through 9, “Reestablishing Connectivity between Alton and Heut’s Ranch” of the new appendix 3-5 include a general description of the connectivity project and supportive research. The application needs to include a clear, concise and comprehensive habitat connectivity plan that includes at a minimum:

- A detailed description of the project
- A map, 1”=500’, that is consistent with the current vegetation maps in the application that clearly identifies the vegetation and the project area.
- Right of entry from the surface owners if other than ACDC * note it is the responsibility of the applicant to provide that information.
- A detailed description of the methodology.
- A seed mix, methodology for dispersal and rate of application.
- A description of the site restoration to prevent erosion.
- A detailed time line for implementation
- Funding

• The remaining proposed habitat conservation and mitigation efforts, items 2 through 6 noted on page 2 of appendix 3-5, the goals on page 3-42 of chapter 3, the plans described in Appendix 3-1, pages 20 through 23 and the proposed mitigation objectives outlined on pages 9 and 10 of appendix 3-3 also need to include the referenced criteria as appropriate to develop one clear, concise and comprehensive sage grouse mitigation plan. [JH]

R645-301-322, -301-333, -301-342, -301-358, Chapter Three. Page 3-43, “...mining activities will be minimized so that the lowest disturbance will be created during

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the breeding season at areas adjacent to the original lek". The term "minimized" is too subjective and "lowest disturbance needs to be defined. Technically all areas adjacent to the lek will be disturbed and there are no specific provisions to avoid the lek during the breeding season. The application needs to include a commitment not to disturb the lek during the breeding season including some buffer. • Page 3-43, "...In sites used by sage-grouse for breeding and roosting that had previous livestock grazing, livestock will be used post-reclamation to maintain similar vegetation characteristics as pre-mining conditions." This logic is at best difficult to follow and the action is not acceptable as sage-grouse mitigation. Much of the "pre-mining condition" is over utilized rangeland. Indeed historic (i.e. the last 100 years) is likely at least partially the cause of long-term PJ encroachment and loss of understory components that are important for sage-grouse brood-rearing. In other words, resuming pre-mining land use will (in essence) will result in a population of sage-grouse that is "vulnerable to elimination". Restoring this area to current land use regimes is not beneficial to an already vulnerable sage-grouse and can not be considered mitigation. The applicant needs to revise this section of the application. Example: During the October 1, 2 tour of Robinson creek; it was obvious that the landowner actively partakes in sage-brush removal treatments (maybe the herbicide spike?). Further, excessive soil compaction and almost complete lack of understory (other than non-native cow forage like crested wheat-grass) indicate a heavily overgrazed pasture. This pre-mining land use is in no way beneficial to sage-grouse. •Page 3-46. Establishment of a Core Sage-Grouse Conservation Area. The applicant needs to simply execute treatments to this area to the maximum extent feasible. These treatments take time, at least a couple of years. Given the timeline to excavate the private leases, these treatments need to happen this fall...really two falls ago, and the area needs to be rested from cattle grazing (standard is typically at least two years of resting) to ensure establishment of planted forbs and grasses. [JH]

R645-301-322, -301-333, -301-342, -301-358, Bald and Golden Eagles. This section needs to include a narrative about each species including their status within ½ mile of the proposed disturbed area. • **Wetlands and Habitats of Unusually High Value for Fish and Wildlife.** Wetland areas are described on page 3-73 of the application and chapter 7. According to the application, there are wetland areas in the permit area. Page 3-73 refers the reviewer to page 3-40 of the application for protection measures for these areas. The information on page 3-40 does not describe protection and enhancement measures for the wetland areas. [JH]

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

Vegetation communities are described in Volume 2, Chapter three of the application. The descriptions include acreage, percent of total by community, total living cover, percent cover by shrubs, grasses, forbs and woody plant species, for:

- The proposed Disturbed Sagebrush/Grass Community
- The Sagebrush/Grass Reference Area
- The Proposed Disturbed Meadow (Dry) Community
- The Meadow (Dry) Reference Area
- The Proposed Disturbed Pinyon-Juniper Community
- The Pinyon-Juniper Reference Area
- The Proposed Disturbed Pasture Land Community
- The Pasture Land Reference Area
- The Proposed Disturbed Oak brush Community
- The Oak Brush Reference Area
- The Proposed Disturbed Meadow Community
- The Meadow Reference Area
- Other Meadow Communities

Tables 3-1 through 3-33 include living cover and frequency by plant species, total cover and composition and woody species density. Table 3-34 includes ***"Biomass Production of Plant Communities in the Coal Hollow Permit Area"***. These figures are represented in pounds per acre for each community.

Appendices 3-2 and 3-4 include the methodologies, (maps, sampling design and transect/quadrant placement, cover and composition, woody species density, sample size and adequacy, statistical analyses, photographs and threatened and endangered plant species), results, summary and discussion and color photographs for the referenced communities.

Page 15, Threatened & Endangered Plant Species Survey, the application includes a description of the T&E plant species survey, and a narrative that describes the species, location, elevation, soil type, moisture requirements, and the presence or absence of each species. Threatened and Endangered Plant species are described in table 3-35, Appendix 3-4 page 5. The reviewer is referred to chapter three Section 333 PROCEDURES TO MINIMIZE ADVERSE IMPACTS TO FISH AND WILDLIFE. There is no information in this section that describes the protection and enhancement measures for wet meadow areas.

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Findings:

The information is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with:

R645-301-330, -301-331, -301-332, The application, section 333, as referred to by the applicant needs to include the protection and enhancement measures for wet meadow areas during active mining operations. [JH]

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The reclamation plan for the Coal Hollow surface mine is included in Chapter 3, Sections 340 through 358.530, pages 44 through 74. The application includes a description of reclamation and protection measures and techniques to be implemented in order to achieve reclamation success of the areas disturbed by surface mining activities.

Findings:

The information in the application is adequate to meet the requirements of this section of the regulations.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The post mining land use for the areas to be mined is described in Volume 2, Chapter 4, and Pages 4-6 through 4-9. Assuming the permittee implements the reclamation plan as described in the MRP the post mining land use should be achieved. There are two landowners of

the permit area, Richard Dame and Burton Pugh. The applicant and DOGM staff have consulted with them regarding their interests in the final outcome of the reclamation efforts. Management plans for each landowner are described on Pages 4-7 and 4-8 of Chapter 4.

The Management Plan for the Richard Dame Property, the current land use of Mr. Dame's property is forage for domestic livestock and some wildlife species. The land includes irrigated pasture for cattle and some horses, native stands of pinyon juniper and sagebrush communities as noted on map 3-1, Vegetation. Mr. Dame has expressed an interest to return his property to pasture land that focuses on domestic livestock and includes some plant species for wildlife habitat. Table 3-19 includes the seed mix, native and introduced grasses and forbs, to be planted to meet the landowner's request. A copy of the signed management plan is included in appendices 4-3 and 4-4.

The Management Plan for the Burton Pugh Property, the land owned by Mr. Pugh in the permit area provides forage for livestock and some wildlife species as well. The land includes non-irrigated pastureland, meadows, sagebrush/grass, pinyon juniper and oak brush communities as noted on map 3-1. The livestock on the property are mostly cattle and sometimes horses. Mr. Pugh has expressed an interest in restoring his land to its original use or better condition for livestock and wildlife habitat. In order to accomplish this pasture, lands will be reclaimed with the focus on domestic livestock. The seed mix will include plant species used by wildlife species in addition to native and introduced grasses. A portion of the property will be reclaimed to sage –grouse habitat as well as mined areas that were interspersed with pinyon juniper. A copy of the signed management plan is included in appendices 4-3 and 4-4.

Appendix 1-7 includes an Amended Grant of Easement and Assignment Agreement for County Road K3900 between Sink Valley Ranch, LLC and Alton Coal Resources, LLC. This document was signed on November 26, 2008 and filed with the County Recorder on December 4, 2008. This document confirms that the landowner is aware of two restoration alignment options on his land and has given the County a 66 ft wide easement under either scenario.

Findings:

The information in the application meets the requirements of this section of the regulations.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

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The application includes measures to be taken to protect fish wildlife and related environmental values during reclamation operations in chapter 3, Sections 358 through 358.530, pages 72 through 74 including:

- Threatened and Endangered Species,
- Eagles,
- Removal of a Threatened & Endangered Species,
- Riparian and Wetland Areas,
- Powerline and Transmission Facilities,
- Fences and Conveyers and,
- Toxic-Forming Areas.
-

Chapter 5, Section 521.125, page 5-8 states that “The MRP does not contemplate construction of any permanent water impoundments; coal processing waste banks and coal processing waste dams or embankments. **Chapter 3, p. 3-80** indicates that there will be no ponds that contain hazardous concentrations of toxic forming materials.

Findings:

The information in the application meets the requirements of this section of the regulations.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Chapter 3, pages 3-44 and 3-57 and Chapter 5, pages 5-59 through 5-65 include some contemporaneous reclamation information. Section 341.100 on page 3-44 states that “*A detailed schedule and timetable for the completion of each major step in the mine plan has been included in Chapter 5 of the MRP*”. Chapter 5 includes a detailed description of each step in the surface mining process. However there are no schedules or timetables included in chapter 5 that are pertinent to contemporaneous reclamation. Chapter 5 needs to be revised to include a detailed schedule and timetable for each major of reclamation plan.

Findings:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with:

R645-301-352, -301-553; Section 341.100 on page 3-44 states that *"A detailed schedule and timetable for the completion of each major step in the mine plan has been included in Chapter 5 of the MRP"*. Chapter 5 includes a detailed description of each step in the surface mining process. However there are no schedules or timetables included in chapter 5 that are pertinent to contemporaneous reclamation. Chapter 5 needs to be revised to include a detailed schedule and timetable for each major step of reclamation. [JH]

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

The revegetation portion of the reclamation plan for the Coal Hollow surface mine is included in Chapter 3, Sections 341 through 358.530, pages 44 through 74.

Revegetation: Timing

Chapter 5 of the application includes a detailed description of the completion of each major step in the mining process. Accordingly, no more than 40 acres will be disturbed at any given time. Section 341.100 on page 3-44 states that *"A detailed schedule and timetable for the completion of each major step in the mine plan has been included in Chapter 5 of the MRP"*. Chapter 5 includes a detailed description of each step in the surface mining process. However there are no schedules or timetables included in chapter 5 that are pertinent to contemporaneous reclamation. As noted in the section under Contemporaneous Reclamation, Chapter 5 needs to be revised to include a detailed schedule and timetable for each major step in the mine plan.

Revegetation: Mulching and Other Soil Stabilizing Practices

Mulching techniques are described in Section 341.230, page 3-53 of the application. According to this information, mulch will not be applied to the reclaimed pastureland. Granted this area is relatively flat and one of the primary uses of mulch is to control erosion. However there are additional beneficial uses for mulch. *According to the United States Department of Agriculture research paper, Reclamation on Utah's Emery and Alton coal fields: Techniques and Plant Materials, INT-335, June 1985, page 24, "At the end of the first growing season,*

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frequency of grass plants averaged 92 percent on the ripped area where hay had been rotovated into the soil surface compared to 52 percent on ripped areas receiving no hay amendment."

Accordingly, it seems reasonable for the applicant to consult with the division's soils and biology staff regarding mulch or soil amendments for the pastureland areas. The applicant also needs to explain how water will initially get to the reclaimed pasture areas, as there are no commitments in the plan to irrigate these reclaimed areas.

Revegetation: Standards for Success

Standards for success are described in Section 356, pages 3-62 through 3-65 of the application. They will follow the requirements of R645-301-353 and "Appendix A, Vegetation Information Guidelines". Criteria for determining success include: Cover, Shrub Density, Frequency, Production and Diversity.

Findings:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval, the following information must be provided in accordance with:

R645-301-353, -301-354, -301-355, -301-356, According to the Application, mulch will not be applied to the reclaimed pastureland. Granted this area is relatively flat and one of the primary uses of mulch is to control erosion. However there are additional beneficial uses for mulch. According to the United States Department of Agriculture research paper, Reclamation on Utah's Emery and Alton coal fields: Techniques and Plant Materials, INT-335, June 1985, page 24, "At the end of the first growing season, frequency of grass plants averaged 92 percent on the ripped area where hay had been rotovated into the soil surface compared to 52 percent on ripped areas receiving no hay amendment. Accordingly, it seems reasonable for Division to require the applicant to consult with the division's soils and biology staff regarding mulch or soil amendments for the pastureland areas. The applicant also needs to explain how water will initially get to the reclaimed pasture areas, as there are no commitments in the plan to irrigate these reclaimed areas. [JH]

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Affected Area Boundary Maps

Affected area boundary maps are located in Volume 3, Chapter 5, Plates 5-1, 2, 9, 10, 13, 14, and 5.

Reclamation Monitoring and Sampling Location Maps

Drawing 3-1 includes the location of the reference areas where vegetation was sampled prior to disturbance will be sampled post reclamation. The application needs to include a commitment to provide the post reclamation sampling locations of the reclaimed area. The applicant should also address the remaining portions of R645-301-323 in consultation with the Division. The portions include 323.200, 300, and 400. May include raptor nest identification and locations, Sage Grouse Leks, habitat improvement areas.

Reclamation Treatments Maps

The reviewer is referred to Drawing 5-20 and 5-20A. 5-20 shows the location of the temporary diversion in Robinson Creek and is not at this point considered to be a reclamation treatment map. Drawing 5-20A is adequate to show the reclamation treatments for Robinson Creek. The application needs to also include the reclamation treatment maps for the reclaimed areas including a delineation of any areas where a different seed mix or rate of application is proposed such as sage grouse habitat and pasture restoration.

Findings:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with:

R645-301-323, Reclamation Monitoring and Sampling Location Maps: Drawing 3-1 includes the location of the reference areas where vegetation was sampled prior to disturbance will be sampled post reclamation. The application needs to include a commitment to provide the post reclamation sampling locations of the reclaimed area. The applicant should also address the remaining portions of R645-301-323 in consultation with the Division. The portions include 323.200, 300, and 400.

Reclamation Treatments Maps The reviewer is referred to Drawing 5-20 and 5-20A. 5-20 shows the location of the temporary diversion in Robinson Creek and is not at this point considered to be a reclamation treatment map. Drawing 5-20A is adequate to show the reclamation treatments for Robinson Creek. The

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application needs to also include the reclamation treatment maps for the reclaimed areas including a delineation of any areas where a different seed mix or rate of application is proposed such as sage grouse habitat and pasture restoration. [JH]

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Volume 6, Chapter 7, Appendix 7-7 has been added to the application to address **Alluvial Valley Floors**. This portion of the technical analysis will include a review of the requirements described in sections 302-321.240 and 321.250 and 321,260 of the R645 regulations. Section 5.4.4 refers to table 7 that identifies the characteristics of the meadow and dry meadow plant communities as being conducive to sub-irrigation. Section 6.4 states that *"the topographic characteristics of most lands within the project area are compatible with flood irrigation techniques"*. The application needs to include a mitigation plan for restoring water to these areas.

Plates 3 and 4 include color infrared aerial imagery taken in July of 2006 and November of 2007. On October 1,2, 2008 representatives from DWR, DOGM, Petersen Hydrologic, Mt. Nebo Scientific and Alton Coal Development Co. met at the proposed Coal Hollow mine location. The purpose of the field visit was multi fold and included gathering information for AVF determinations in adjacent areas, describing high value habitat for wildlife and proposed mitigation plans to off set potential impacts sage grouse and their respective habitat. During the field evaluation Dr. Collins and the undersigned discussed the interpretation of R645-302-321.260. It was concluded, personal conversation with Patrick Collins, that "an analysis of a series of aerial photographs including infrared imagery flown at a time of year to show any summer and fall differences between upland and valley floor vegetation" had been completed by the applicant. Although it was not specifically stated during the discussion in the field the Division came away with the understanding that the results and conclusions of the analysis were readily available in the application and therefore the information in the application met the requirements of this section of the regulations. The results and conclusions from the analysis of the color infrared aerial imagery, plates 3 and 4 need to be included in section 7.1 page 31 of Appendix 7-7.

It is clear that both plates 3 and 4 show differences between upland and valley floor vegetation. A comparison of the two plates is somewhat of a mystery as they were developed at different exposures. That observation needs to be stated in the conclusions of the analysis along with the other conclusions that were reached based on the analyses of the photos. The differences between the upland and valley floor vegetation should be delineated.

Appendix 7-7 includes a description of the AVF in the adjacent area, page 31 section 8.0. According to the analysis of the information in the appendix, an AVF is present to the south and west and possibly east of the proposed disturbed area. Appendix 7-7 has been revised to include information for these areas including at a minimum agricultural production as noted in section 8.1.2.

Findings:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with:

R645-302-321.260, Section 6.4 states that *"the topographic characteristics of most lands within the project area are compatible with flood irrigation techniques"*. The application needs to include a mitigation plan for restoring water to these areas. •Plates 3 and 4 include color infrared aerial imagery taken in July of 2006 and November of 2007. On October 1, 2, 2008 representatives from DWR, DOGM, Petersen Hydrologic, Mt. Nebo Scientific and Alton Coal Development Co. met at the proposed Coal Hollow mine location. The purpose of the field visit was multi fold and included gathering information for AVF determinations in adjacent areas, describing high value habitat for wildlife and proposed mitigation plans to off set potential impacts sage grouse and their respective habitat. During the field evaluation Dr. Collins and the undersigned discussed the application of R645-302-321.260. It was concluded, personal conversation with Patrick Collins, that "an analysis of a series of aerial photographs including infrared imagery flown at a time of year to show any summer and fall differences between upland and valley floor vegetation" had been completed by the applicant. Although it was not specifically stated during the discussion in the field, the Division came away with the understanding that the results and conclusions of the analysis were readily available in the application and therefore the information in the application met the requirements of this section of the regulations. A discussion of the results and conclusions from the analysis of the color infrared aerial imagery, plates 3 and 4 needs to be included in section 7.1 page 31 of Appendix 7-7. [JH]

RECOMMENDATIONS:

The application is not recommended for approval at this time.